

# Morcos Bishay

Senior Software Engineer

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## TECHNICAL SKILLS

**Frontend:** React.js, Next.js (App and Pages Router), TypeScript, JavaScript, Tailwind CSS, Radix UI, shadcn/ui, Chakra UI, Material UI, Styled Components, Redux Toolkit, TanStack Query, React Context, Zustand, react-hook-form, Framer Motion

**Backend:** Node.js, Express.js, Prisma ORM, PostgreSQL, Neon DB, MongoDB, Firebase Firestore, REST APIs, Zod, Clerk, NextAuth, JWT, Python (FastAPI, uvicorn)

**AI and Machine Learning:** OpenAI API, fal.ai (FLUX LoRA trainer), Seedream, ElevenLabs, Cohere, Vercel AI SDK, Pinecone, Inngest, LLM fine-tuning

**Mobile:** React Native, Expo, expo-router, react-native-vision-camera, RevenueCat, Apple Wallet, Google Wallet, Offline-first architecture, Push Notifications

**Cloud, DevOps and Tools:** AWS (S3, SQS, Lambda), Microsoft Azure, GCP (Cloud Storage), Vercel, Firebase, Docker, Git, Stripe, WhatsApp Business API, Plasmo (Chrome Extensions), i18n (8 languages), Jest, Storybook, Sentry, PostHog, Mixpanel

## PROFESSIONAL EXPERIENCE

### Nodogoro | Tech Lead / Senior Software Engineer

Dec 2022 – Present | Remote

- Architected and delivered 14+ production applications (Next.js web apps, React Native mobile apps, Python microservices, Chrome Extensions) across AI, edtech, fintech, and SaaS — owning full-stack development from Figma design handoff to cloud deployment on AWS, Azure, and GCP.
- Built REST APIs using Next.js API Routes, Node.js, and Express with TypeScript, implementing authentication (Clerk, NextAuth), request validation (Zod), role-based access control, and AWS SQS event-driven queues across multi-tenant systems.
- Integrated AI features using OpenAI, fal.ai, ElevenLabs, and Cohere; fine-tuned LLMs for domain-specific tasks; orchestrated multi-step async AI pipelines with Inngest durable functions ensuring step-level retries and fault tolerance.
- Led state management strategy using Redux Toolkit and TanStack Query; drove i18n across 8 languages; reduced landing page load time from 3 seconds to 200ms via code splitting, lazy loading, and caching.

### Key Projects

- Starpilot:** React Native (Expo) app for recording video sessions with simultaneous IMU sensor data capture (accelerometer and gyroscope), paired with a Next.js admin panel and a multi-language signup flow. Built an offline-first architecture with local session persistence, automatic sync on reconnect, and an upload manager with S3 presigned URLs, per-session retry logic, and concurrent video and IMU transfers. Designed and deployed a Python FastAPI video compression microservice on Microsoft Azure that receives raw video via webhook, compresses it, and returns a low-resolution preview alongside the original for efficient admin review.
- Studioshot:** AI professional headshot generator (Next.js 15 and React 19) with a full async AI pipeline: photo upload, face detection via RapidAPI, HEIC conversion, image cropping, S3 and GCS storage, fal.ai FLUX LoRA model training via webhook, AI image generation, and packaged delivery — orchestrated with Inngest durable functions (concurrency limit 60, throttle 30 requests per second). Integrated Stripe, Clerk, Upstash Redis, Prisma, PostgreSQL, and Sentry. Built a separate AWS Lambda microservice for pre-upload image quality validation. Developed a suite of free AI photo editing tools (background removal, photo enhancement, and lighting correction) as a marketing funnel backed by a dedicated Microsoft Azure processing server. Also built a resume builder tool that embeds the user's AI-generated headshots directly into a downloadable resume, extending product value and increasing conversion.
- Studioshot Admin Dashboard:** Companion Next.js admin panel managing the full order lifecycle: reviewing AI-generated headshots, approving and delivering results to customers, managing style references with image replacement via S3 presigned uploads, artist assignment, failed album monitoring, and AI sample generation — backed by TanStack Query for real-time cache invalidation.
- Figmaker:** AI collectible figure generator (Next.js) using OpenAI and Qwen AI models with reference images to produce 5-view illustrations (front, back, left, right, fixed-front) per order. Each view is generated independently and tracked in a Prisma JSON field for partial failure recovery. Integrated AWS SQS, Stripe, SendGrid, and a separate Next.js admin dashboard for order management.
- Coursology Chrome Extension:** Built with the Plasmo framework with 5 simultaneous content scripts injected across all URLs: a screenshot AI explainer, a text-selection AI assistant, a right-click context menu solver, a canvas overlay for question annotation, and integrations with Canvas, Blackboard, Moodle, and Brightspace LMS platforms. Shadow DOM isolation prevents CSS conflicts with host pages, and a smart domain exclusion list covers all major banking and financial sites for security compliance.
- Coursology Web and Mobile Suite:** Turborepo monorepo with 7 apps: an AI quiz generator with shareable and graded sessions; an AI essay writer with Pinecone vector search, style learning, and real-time autocomplete; an AI chat app over uploaded materials; a lecture notes generator processing live audio and YouTube videos via YouTube Data API v3; an AI-powered podcast generator from study materials using ElevenLabs voice synthesis for engaging multi-voice audio output; and a React Native mobile app with camera question solving, AI math step-by-step explanations via Wolfram Alpha, and lecture recording. Built a custom Cohere LLM provider (Vercel AI SDK interface), a server-side Firewall with IP and email blacklisting, and integrated Mixpanel and Klaviyo for analytics.

- **Confide:** AI daily video journaling app (Expo React Native) with ElevenLabs streaming TTS, live audio capture, Vision Camera video recording, and an AI chatbot. Integrated RevenueCat for cross-platform subscriptions, Sentry, PostHog, AppsFlyer, and Facebook SDK. Built three iOS native extensions (ActivityMonitor, ShieldAction, ShieldConfiguration) for Screen Time integration.
- **SeenJeem:** Bilingual Arabic and English AI form builder with OpenAI-powered form generation, WhatsApp Business API notifications, ready-made templates, and full RTL and LTR i18n layout switching.
- **SchoolDay.ai:** Attendance management system — full UI with Redux and REST API integration, real-time QR and barcode scanning supporting device cameras and physical USB barcode scanners.
- **DigiPrnt:** Digital employee ID platform — bulk Apple Wallet and Google Wallet pass generation with certificate signing and Arabic and English i18n.
- **BoomStocks.ai:** Real-time stock portfolio dashboard (React and Firebase Firestore) with live listeners, Recharts analytics, trade journal with CSV brokerage import, P&L charts, win-rate stats, and goal tracking.

## LyRise | Software Engineer I

Nov 2021 – Nov 2022 | Remote

- Delivered 5 interconnected portals (Talent, Employer, Key Account Manager, Admin, Landing Page) — converting Figma and Adobe XD designs into responsive React frontends with Node.js, Express, TypeScript, and MongoDB backends, including full REST API design, authentication middleware, and request validation.
- Wrote Jest API test suites for critical endpoints; integrated Google Analytics, Google Tag Manager, Amplitude, and Mouseflow; conducted dedicated quality sprints for codebase refactoring, pattern standardization, and technical debt elimination across all portals.

## PROJECTS

### Ribbonwire

- Full-stack Next.js inventory and supply chain system for a beef distributor — SKUs, purchase orders, production runs, customer accounts, and multi-facility warehouse inventory. Implemented a FIFO lot-allocation engine using Prisma transactions to atomically reserve stock from the oldest lots by best-by date, preventing over-allocation across concurrent orders. Built data migration scripts for backfilling SKU IDs, recalculating historical inventory snapshots, and reallocating existing purchase orders to correct lots.

### Bellies En-Route

- React Native (bare workflow) expense tracking app published on the Apple App Store and Google Play — full CRUD with server-side pagination, role-based settings, vendor balance tracking, date-filtered reports, and Excel export for finance teams.

## EDUCATION

### The German University in Cairo

Oct 2016 – Jul 2021

B.Sc. Computer Science and Engineering | GPA: 1.93 / Very Good (German Scale)

- Thesis: PhyAR — Mixed and Augmented Reality Platform for Physics Concepts (Grade A+, published in Springer)